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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,716	01/17/2002	Charles L. Hett	H0001799	1382

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EXAMINER	
OSBORNE, LUKE R	

ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/052,716	HETT, CHARLES L.	
	Examiner	Art Unit	
	Luke Osborne	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8,12,14-17,19-25,27-37 and 39-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6, 8, 14-16, 20-23, 28-35 and 39-43* is/are rejected.

7)☒ Claim(s) *12,17,19,24,25,27,36 and 37* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/13/2006 has been entered.

Claim Status

2. Claims 1-6,8,12,14-17,19-25, 27-37, and 39-43 are now pending in the instant application.

3. Applicants' amendment submitted 4/13/2006 have been fully considered, Examiners response is as follows.

Response to Arguments

4. Applicant's arguments with respect to claims 1-6,8,12,14-17,19-25, 27-37, and 39-43 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the limitation "the illuminated indicators" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 5, 6, 20-22, 28, 32-35 and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,661,486 to Faivre et al., hereinafter "Faivre".

Regarding claim 1, Faivre discloses an airport lighting aid simulation generator. See Figures 1, 2 and the corresponding portions of Faivre's specification for this disclosure. In particular, Faivre discloses an airport lighting aid simulation generator,

– a means for receiving position and altitude signals [Faivre: means of navigation 3 enabling the approximate position of the aircraft to be determined (Column 2, lines 14-16)];

– a means for determining position and altitude information from the position an altitude signals [Faivre: means of navigation 3 enabling the approximate position of the aircraft to be determined (Column 2, lines 14-16)];

– a means for retrieving runway position and direction information from a database of airport information as a function of the position and altitude signals [Faivre: Once this approximate position is known, if these means 3 are connected to the database 1, a safe altitude or landing procedure can be read from the database, corresponding to this known position, if such information has been stored in the database (Column 2, lines 16-20)];

– a means for determining a glide path as a function of the runway position and direction information retrieved from the database [Faivre: a safe altitude or landing procedure can be read from the database, corresponding to this known position (Column 2, lines 16-20)];

– a means for determining deviation from the glide path as a function of comparing the position and altitude information with the glide path

[Faivre: which then compute, for example, the deviation of the aircraft from a theoretical glide path, followed by the course correction data required to bring the aircraft onto the glide path. These computations are based on the point of touchdown of the aircraft on the runway and the landing procedure for this runway, which are extracted from the database 1 (Column 2, lines 43-49)]; and

– a means for outputting a signal representative of the deviation from the glide path [Faivre: course correction data required to bring the aircraft onto the glide path (Column 2, lines 16-20)].

Regarding claim 5, Faivre discloses the generator of claim 1, wherein the means for determining a glide path further comprises means for generating the glide path as a combination of the runway position and direction [Faivre: a runway 23 of the airport, for example the one on which the aircraft is to land] with the position and altitude information [Faivre: Means of navigation] (Column 2, lines 55-60).

Regarding claim 6, Faivre discloses the generator of claim 1, wherein the means for determining deviation from a glide path further comprises means for retrieving the glide path from the database [Faivre: Once this approximate position is known, if these means 3 are connected to the database 1, a safe altitude or landing procedure can be read from the database (Column 2, lines 16-20)]

Claims 20-22 contain similar limitations as claims 1,5,6 thus are rejected for the same reasons.

Claims 28, 32, 33 contain similar limitations as claims 1, 5, 6 thus are rejected for the same reasons.

Regarding claim 34, Faivre discloses the method of claim 18, further comprising updating the deviation over time [Faivre: then compute, for example, the deviation of the aircraft from a theoretical glide path, followed by the course correction data required to bring the aircraft onto the glide path (Column 2, lines 43-49)].

Regarding claim 35, Faivre discloses the method of claim 34 wherein updating the deviation over time further comprises repeating the determining of the deviation from the glide path at predetermined intervals [Faivre: then compute, for example, the deviation of the aircraft from a theoretical glide path, followed by the course correction data required to bring the aircraft onto the glide path (Column 2, lines 43-49)].

Regarding claim 42, Faivre discloses the generator of claim 1, wherein the mans for determining deviation from the glide path further comprises a means for determining deviation from the glide path as a function of comparing the positing and altitude information with the glide path exclusive of an Instrument Landing System (ILS) signal [Faivre : An embodiment of this invention was developed to be exclusive of ground to air communication Figure 2].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 2-4, 8, 14-16, 23, 29-31, 39-41, 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faivre in view of "Operational Experience with and Improvements to a Tunnel-in-the-Sky Display fro Light Aircraft" by Barrows et al., Published in 1997, hereinafter, "Barrows".

Regarding claim 2, Faivre teaches the generator of claim 1, however Faivre does not expressly teach visually displaying the deviation from the glide path as a function of the deviation signal.

Barrows teaches a color coded, high contrast cockpit display of lateral and vertical deviation from the glide path [Barrows: Figure 6, Page 6].

It would have been obvious to person of ordinary skill in the art at the time of the invention to combine the instrument landing system of Faivre with the synthetic vision system of Barrows.

The motivation to do so would have been to reduce the reliance on or increase the safety of the ILS and MLS systems as evidenced by both Barrows and Faivre.

Regarding claim 3, the combination as applied to claim teaches claim 2, Barrows further teaches wherein the displaying means further comprises means for displaying the deviation as a pattern of color coded indicators [Barrows: the deviation by is rendered as a pattern of color coded (visible) indicators].

Regarding claim 4, Barrows further teaches, wherein the displaying means further comprises means for displaying information as to the degree of deviation from the glide path as a visual image relative to the pattern of color coded indicators [Barrows: the deviation scale allows for the degree of deviation to be displayed].

Claim 8 contains similar limitations as claim 2, thus is rejected for the same reasons.

Claim 14 contains similar limitations as claim 2, thus is rejected for the same reasons.

Claims 15 and 16 contain similar limitations as claims 5 and 34, thus are rejected for the same reasons.

Claim 23 contains similar limitations as claim 2, thus is rejected for the same reasons.

Claim 29 contains similar limitations as claim 2, thus is rejected for the same reasons.

Regarding claim 30, Barrows further teaches, Wherein displaying the deviation further comprises displaying an airport image as a function of the airport information retrieved from the database; and displaying the deviation as a substantially conformal presentation relative to the airport image [Barrows The tunnel display was kept simple to minimize computational requirements and enhance ease of use. The field of view

represented was 40 degrees vertical by 50 degrees horizontal and included the runway and control tower depicted in correct perspective (Page 5)].

Claim 31 contains similar limitations as claim 3, thus is rejected for the same reasons.

Regarding claim 39, Barrows further teaches wherein the signal generator is further structured to output signals representative of a lateral deviation scale relative to the runway; and the display is further structured to responsively output a visual indication of the lateral deviation scale [Barrows: Figure 6 Horizontal Deviation Indicator].

Regarding claim 40, Barrows further teaches wherein the signal generator is further structured to output signals representative of horizontal and longitudinal perspective line segments in positions relative to ground as a function of the airport information and the position and altitude of the host aircraft; and

The display is further structured to responsively output a visual indication of the horizontal and longitudinal perspective line segments in positions constructed to appear conformal to a flat surface on the ground [Figure 6, The approach and missed approach paths were depicted as "hoops" 100m wide with a spacing of 500m on straight segments (Page 5)].

Regarding claim 41, Barrows further teaches wherein the signal generator is further structured to output signals representative of a path to a current waypoint and a next waypoint; and

The display is further structure to responsively output a visual indication of the path to the current and next waypoints [Figure 6, The approach and missed approach paths were depicted as "hoops" 100m wide with a spacing of 500m on straight segments (Page 5)].

Claim 43 contains similar limitations as claim 42, in light of claim 8, thus is rejected for the same reasons as claim 42.

Allowable Subject Matter

Claims 17, 19, 24, 25, 27, 36, 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The claims in light of the specification define an avionics display which presents a simulated (a.k.a. synthetic vision system) out the window display, while this is a simulated display in the context of being a modeled representation of the outside world it is an instrument onboard, not the primary display of a flight simulator. Also the deviation from the glide path is determined without the use of ground based signals (ILS), as is apparent from Applicant's remarks dated 4/13/2006.

While Faivre, Burrows, and Wilkens teach aircraft indicators displaying glide path indication and deviation from the glide path none of these reference(s) taken either alone or in combination with the prior art of record disclose displaying the glide path indicators as shown on the ground on the display, specifically including:

(claim 17,19) wherein the pattern of indicators further comprises a pattern of indicators that substantially simulates an airport lighting aid.

(claim 24,25,27) wherein the pattern of indicators the pattern of display indicators simulates a known airport lighting aid.

(claim 36,37) pattern of illuminated indicators simulating a known airport lighting aid.

These limitations in combination with the remaining elements and features of the claimed invention. It is for these reason that the applicant's invention defines over the prior art of record.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luke Osborne whose telephone number is (571) 272-4027. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul L. Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LRO

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7/10/06